



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/845,009	04/27/2001	Ajay Divakaran	MH-5071	1478

7590 02/03/2006

Patent Department  
Mitsubishi Electric Research Laboratories, Inc.  
201 Broadway  
Cambridge, MA 02139

EXAMINER

RAO, ANAND SHASHIKANT

ART UNIT	PAPER NUMBER
----------	--------------

2613

DATE MAILED: 02/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/845,009

Applicant(s)

DIVAKARAN ET AL.

Examiner

Andy S. Rao

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11/21/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 7-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-9 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

1. Applicant's arguments with respect to claims 1-5, and 7-11 as filed on 11/21/2005 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wee et al., (hereinafter referred to as "Wee") in view of Park et al., (hereinafter referred to as "Park").

Wee discloses a method for summarizing a compressed video (Wee: figures 6-8; column 5, lines 50-60), comprising: measuring a cumulative motion activity intensity (Wee: column 9, lines 30-35) in the compressed video; selecting key frames from the compressed video according to the cumulative motion activity intensity (Wee: column 8, lines 35-53); and concatenating the key-frames in a temporal order to form a summary of the compressed video (Wee: column 9, lines 1-25), as in claim 1. However, Wee fails to disclose using an average motion vector magnitude in generating the motion activity intensity as in the claim. Park discloses the use of using an average motion vector magnitude (Park: figure 13, steps s43 and s73) in order to generate a dominant motion activity intensity over a group of frames (Park: column 24, lines 25, lines 1-67) as an easy search parameter for video summarization (Park: column 29, lines 1-15).

Art Unit: 2613

Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate the Park use of an average motion vector magnitude into the Wee motion activity intensity generation in order have the Wee method of concatenate frames according to a motion activity intensity search parameter. The Wee method, now incorporating the Park use of an average motion vector magnitude, has all of the features of claim 1.

Regarding claim 2, the Wee method, now incorporating the Park use of an average motion vector magnitude, has partitioning the compressed video into a plurality of segments, each segment having a substantially equal amount of cumulative motion activity intensity; and selecting one key-frames from each segment (Wee: column 8, lines 10-25), as in the claim.

Regarding claims 3-4, the Wee method, now incorporating the Park use of an average motion vector magnitude, has wherein the number of segments is one less than a number of desired key-frames in the summary (Wee; column 9, lines -24), as in the claim.

Regarding claim 5, the Wee method, now incorporating the Park use of an average motion vector magnitude, has selecting a middle frame according to the accumulated motion activity intensity of each segment as one of the key-frames (Wee: column 8, lines 45-55), as in the claim.

Regarding claim 7, the Wee method, now incorporating the Park use of an average motion vector magnitude, has the motion activity intensity is measured from a median motion vector magnitude (Park: column 22, lines 35-45), as in the claim.

Regarding claim 8, the Wee method, now incorporating the Park use of an average motion vector magnitude, has the motion activity intensity measured from a standard deviation of the motion vector magnitude (23, lines 20-65), as in the claim.

Art Unit: 2613

Regarding claim 9, the Wee method, now incorporating the Park use of an average motion vector magnitude, has partitioning the compressed video into a plurality of segments according to shot boundaries (Wee: column 8, lines 5-30); measuring the cumulative motion activity intensity in each segment; selecting the key frames from each segment according to the cumulative motion activity intensity (Wee: column 8, lines 50-65); and concatenating the key-frames in a temporal order to form a summary of the compressed video (Wee: column 7, lines 5-15), as in the claim.

#### ***Allowable Subject Matter***

4. Claim 11 is allowed.
5. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim 1. Accordingly, if claim 10 is amended as above, and finally rejected claims 1-5, and 7-9 are canceled, the application would be placed in a condition for allowance.

#### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dimitrova discloses video retrieval of MPEG compressed sequences and a visual indexing system. Prakash discloses scene change detection by segmentation analysis. Zabih discloses an apparatus and process for detecting scene breaks in a sequence of video frames.

Art Unit: 2613

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (571)-272-7337. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2613

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andy S. Rao  
Primary Examiner  
Art Unit 2613

asr  
January 30, 2006

ANDY RAO  
PRIMARY EXAMINER

